2665 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

LABORATORY REPORT

Client:	GEOSYNTEC CONSULTANTS, INC.	Date of Report:	07/19/04
Address:	2100 Main Street, Suite 150	Date Received:	07/01/04
	Huntington Beach, CA 92648	CAS Project No:	P2401397
Contact:	Mr. Mike Reardon	Purchase Order:	SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

One (1) Tedlar Bag Sample labeled: "PNL-F75-1-S"

The sample was received at the laboratory under chain of custody on July 1, 2004. The sample was received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time that it was received at the laboratory.

Sulfur Analysis

The sample was analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Zheng Wang
Analytical Chemist
Air Quality Laboratory

Reviewed and Approved:

Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **PNL-F75-1-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401397
CAS Sample ID: P2401397-001

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 6/30/04
Time Collected: 15:35
Date Received: 7/1/04
Date Analyzed: 7/1/04
Time Analyzed: 10:58
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	**13.5**	12.0	**5.51**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**20.9**	7.80	**6.71**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401397
CAS Sample ID: P040701-MB

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/01/04
Time Analyzed: 09:50
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: GeoSyntec Consultants, Inc. Work order: P2401397

Project: Ascon LF/SB0202-31H

Sample(s) received on: 7/1/04 Date opened: 7/1/04 by: SM

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method/SOP.

		Yes	No	N/A
1	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature NA °C			
	Blank Temperature NA °C			
9	Is pH (acid) **preservation** necessary, according to method/SOP or Client specified information?	☐	☒	☐
	Is there a client indication that the submitted samples are **pH** (acid) preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2401397-001			NA	

Explain any discrepancies: (include lab sample ID numbers):

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Air Quality Laboratory
2665 Park Center Drive, Suite D
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Chain of Custody Record
Analytical Service Request

7/1/04 BM

Client/Address: GeoSyntec 2100 Main St. #150 HB, CA 92648	Project Name: Ascon LF	Analysis	CAS Project No.: P2401398
	Project Number: SB0202-314		Cooler / Blank
Phone (714) 969-0800 Fax (714) 969-0820	Sampling Location: Huntington Beach, CA		Temp_____
Email mreardon@geosyntec.com	P.O. #/Billing Information: SB0202-314 GeoSyntec		
Contact: M. Reardon	Sampler (Signature):		Comments (e.g., preservative or specific instructions)

Client Sample ID	Date Collected	Time Collected	Lab Sample No.	Type of Sample	Container ID (Serial #)	Flow Controller (Serial #)	Sample Volume (Liters)	BTEX 8260B				Expected Turnaround Time: 24 Hr, 48Hr, 3Day, 4Day, 5Day, Standard (10 Business Days)	
PNL-F75-1-S	06-30-04	15:35		Downhole Flux			1	X				10	

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	06-30-04	16:13		6-30-04	1613
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	6-30-04	1645	7/1/04 BM	7/1/04	0938
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Additional Comments

White Copy: Accompanies Samples — Yellow Copy: Retained by Client — COC #13 7/03

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Columbia Analytical Services INC.
An Employee - Owned Company

LABORATORY REPORT

Client:	GEOSYNTEC CONSULTANTS, INC.	Date of Report:	07/19/04
Address:	2100 Main Street, Suite 150	Date Received:	07/01/04
	Huntington Beach, CA 92648	CAS Project No:	P2401406
Contact:	Mr. Mike Reardon	Purchase Order:	Verbal

Client Project ID: Ascon LF/SB0202-31H

Five (5) Tedlar Bag Samples labeled:

"SF-STY1-U-S" "SF-STY1-U-SR" "SF-STY2-U-S"
"SF-STY1-C1-S" "SF-STY2-C1-S"

The samples were received at the laboratory under chain of custody on July 1, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Zheng Wang
Analytical Chemist
Air Quality Laboratory

Reviewed and Approved:

Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P2401406-001

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 09:34
Date Received: 7/1/04
Date Analyzed: 7/1/04
Time Analyzed: 16:53
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**18.4**	7.00	**13.2**	5.00	
463-58-1	Carbonyl Sulfide	**18.8**	12.0	**7.67**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**18.7**	7.80	**6.00**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	**12.1**	18.0	**3.29**	5.00	**J**
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	**21.4**	18.0	**5.94**	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the laboratory method reporting limit;
the associated numerical value is considered estimated.

Verified By: KHH Date: 8/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-SR**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P2401406-002

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 09:45
Date Received: 7/1/04
Date Analyzed: 7/1/04
Time Analyzed: 17:30
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**24.1**	7.00	**17.3**	5.00	
463-58-1	Carbonyl Sulfide	**30.6**	12.0	**12.5**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**24.9**	7.80	**8.01**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	**12.4**	18.0	**3.37**	5.00	**J**
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	**17.8**	18.0	**4.94**	5.00	**J**
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the laboratory method reporting limit;
the associated numerical value is considered estimated.

Verified By: KMH Date: 07/06/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P2401406-003

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 10:13
Date Received: 7/1/04
Date Analyzed: 7/1/04
Time Analyzed: 17:56
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**296**	7.00	**212**	5.00	
463-58-1	Carbonyl Sulfide	**207**	12.0	**84.4**	5.00	
74-93-1	Methyl Mercaptan	**7.85**	9.80	**3.99**	5.00	**J**
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**1,230**	7.80	**394**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	**24.3**	9.60	**6.30**	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the laboratory method reporting limit;
the associated numerical value is considered estimated.

Verified By: _____ Date: 07/06/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C1-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P2401406-004

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 11:04
Date Received: 7/1/04
Date Analyzed: 7/2/04
Time Analyzed: 10:46
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**9.92**	7.00	**7.12**	5.00	
463-58-1	Carbonyl Sulfide	**35.3**	12.0	**14.4**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**42.1**	7.80	**13.5**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	**18.3**	18.0	**4.97**	5.00	**J**
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	**27.6**	18.0	**7.67**	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the laboratory method reporting limit;
the associated numerical value is considered estimated.

Verified By: _____ Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C1-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P2401406-005

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 11:35
Date Received: 7/1/04
Date Analyzed: 7/2/04
Time Analyzed: 11:05
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**2,280**	7.00	**1,640**	5.00	
463-58-1	Carbonyl Sulfide	**1,460**	12.0	**595**	5.00	
74-93-1	Methyl Mercaptan	**29.7**	9.80	**15.1**	5.00	
75-08-1	Ethyl Mercaptan	**19.3**	13.0	**7.58**	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**3,940**	7.80	**1,270**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: KMH Date: 7/7/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P040701-MB

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/01/04
Time Analyzed: 09:50
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: KMH Date: 07/02/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401406
CAS Sample ID: P040702-MB

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/02/04
Time Analyzed: 10:27
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: KHH Date: 07/16/04

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: GeoSyntec Consultants, Inc. Work order: P2401406

Project: Ascon LF/SB0202-31H

Sample(s) received on: 7/1/04 Date opened: 7/1/04 by: SM

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method/SOP.

		Yes	No	N/A
1	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature NA °C			
	Blank Temperature NA °C			
9	Is pH (acid) **preservation** necessary, according to method/SOP or Client specified information?	☐	☒	☐
	Is there a client indication that the submitted samples are **pH** (acid) preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2401406-001			NA	
P2401406-002			NA	
P2401406-003			NA	
P2401406-004			NA	
P2401406-005			NA	

Explain any discrepancies: (include lab sample ID numbers):

Columbia Analytical Services, INC.
An Employee Owned Company
www.caslab.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

6925 Canoga Ave. • Canoga Park, CA 91303 • (818) 587-5550 • 800-695-7222 x02 • FAX (818) 587-5555

PAGE 1 OF 1

P2401406
CAS Contact

Project Name: Ascon LF	Project Number: SB0202-31H
Project Manager: Mike Reardon	Report CC: Lauren Daage
Company/Address: Geosyntec Consultants Broadway St #150 Oakland, CA	
Phone #: (714) 969-0800	FAX#: (714) 969-0820
Sampler's Signature:	Sampler's Printed Name: Hoby Rash

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX
SF-STY1-U-S		07-01-04	9:34	GAS
SF-STY1-U-SR		"	9:45	"
SF-STY2-U-S		"	10:13	"
SF-STY1-C1-S		"	11:01	"
SF-STY2-C1-S		"	11:35	"

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS

See QAPP ☐

TURNAROUND REQUIREMENTS

_____ RUSH (SURCHARGES APPLY)

PLEASE CIRCLE WORK DAYS

1 2 3 4

X STANDARD

REQUESTED FAX DATE_____

REQUESTED REPORT DATE_____

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

MRL ____Yes ____No

PQL/MDL/J ____Yes ____No

Edata ____Yes ____No

INVOICE INFORMATION

SB0202-31H
PO#
GeoSyntec
BILL TO:

Lab No: _____

SAMPLE RECEIPT: CONDITION/COOLER TEMP: _____ CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Hoby Rash	Signature: Lauren Daage	Signature: Lauren Daage	Signature:	Signature:	Signature: Sharon Malone
Printed Name:	Printed Name: GeoSyntec	Printed Name:	Printed Name: CAS	Printed Name: CAS	Printed Name: Sharon Malone
Firm:	Firm:	Firm:	Firm: 7/1/04	Firm: 7/1/04	Firm: CAS 7/1/04
Date/Time: 7-01-04 / 11:44	Date/Time: 7-01-04 / 11:44	Date/Time: 7-1-04 1200	Date/Time: 1200	Date/Time: 1605	Date/Time: 1605

SCOC-0603-15

Distribution: White - Return to Originator; Yellow - Lab Copy; Pink - Retained by Client

2665 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services, Inc.
An Employee - Owned Company

LABORATORY REPORT

Client:	GEOSYNTEC CONSULTANTS, INC.	Date of Report:	07/20/04
Address:	2100 Main Street, Suite 150	Date Received:	07/01/04
	Huntington Beach, CA 92648	CAS Project No:	P2401412
Contact:	Mr. Mike Reardon	Purchase Order:	SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

One (1) 1.0 Liter Canister labeled: "PNL-F75-1-T"

Six (6) Stainless Steel Summa Canisters labeled:

"SF-BLK"	"SF-STY1-U-T"	"SF-STY2-U-T"
"SF-STY2-U-TR"	"SF-STY1-C1-T"	"SF-STY2-C1-T"

The samples were received at the laboratory under chain of custody on July 1, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

C1 through C6 Hydrocarbon Analysis

The samples were analyzed per modified EPA Method TO-3 for C_1 through $>C_6$ hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID).

Reviewed and Approved:

Michelle H. Sakamoto

Michelle Sakamoto
Analytical Chemist
Air Quality Laboratory

Reviewed and Approved:

Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

2655 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

CAS Project No: P2401412

Volatile Organic Compound Analysis

The samples were also analyzed by combined gas chromatography/mass spectrometry (GC/MS) for selected volatile organic compounds and tentatively identified compounds. The analyses were performed according to the methodology outlined in EPA Method TO-15. The analyses were performed by gas chromatography/mass spectrometry, utilizing a direct cryogenic trapping technique. The analytical system used was comprised of a Hewlett Packard Model 5972 GC/MS/DS interfaced to a Tekmar AutoCan Elite whole air inlet system/cryogenic concentrator. A 100% Dimethylpolysiloxane capillary column (RT_x-1, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **PNL-F75-1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-001

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: 1.0 Liter Summa Canister
Test Notes:

Date Collected: 6/30/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 1.2 Pf 1 = 10.0

D.F. = 1.55

Compound	**Result** ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.78	
C_2 as Ethane	ND	0.78	
C_3 as Propane	ND	0.78	
C_4 as n-Butane	ND	0.78	
C_5 as n-Pentane	ND	0.78	
C_6 as n-Hexane	ND	0.78	
C_6+ as n-Hexane	ND	1.6	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-BLK**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-002

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00391

Date Collected: 6/28/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.6 Pf 1 = 3.5

D.F. = 1.19

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.59	
C_2 as Ethane	ND	0.59	
C_3 as Propane	ND	0.59	
C_4 as n-Butane	ND	0.59	
C_5 as n-Pentane	ND	0.59	
C_6 as n-Hexane	ND	0.59	
C_6+ as n-Hexane	ND	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-003

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00125

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.2 Pf 1 = 3.5
D.F. = 1.22

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**1.3**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	**6.2**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-003DUP

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00125

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**1.2**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	**6.8**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-004

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00473

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.3 Pf 1 = 3.5
D.F. = 1.21

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**1.0**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	**20**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-TR**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-005

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00433

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**1.1**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	**20**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-006

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00022

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.1 Pf 1 = 3.5

D.F. = 1.23

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**0.91**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	**14**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P2401412-007

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00575

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.62	
C_2 as Ethane	ND	0.62	
C_3 as Propane	ND	0.62	
C_4 as n-Butane	ND	0.62	
C_5 as n-Pentane	ND	0.62	
C_6 as n-Hexane	ND	0.62	
C_6+ as n-Hexane	**5.1**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID : P2401412
CAS Sample ID : P040708-MB

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Wade Henton
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/08/04
Volume(s) Analyzed: 1.0 ml

D.F. = 1.00

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.50	
C_2 as Ethane	ND	0.50	
C_3 as Propane	ND	0.50	
C_4 as n-Butane	ND	0.50	
C_5 as n-Pentane	ND	0.50	
C_6 as n-Hexane	ND	0.50	
C_6+ as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **PNL-F75-1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-001

Test Code: Modified EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: 1.0 Liter Summa Canister
Test Notes:
Container ID: ISC00012

Date Collected: 6/30/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.40 Liter(s)

Pi 1 = 1.2 Pf 1 = 10.0

D.F. = 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	1.9	ND	0.94	
75-01-4	Vinyl Chloride	ND	1.9	ND	0.76	
106-99-0	1,3-Butadiene	ND	1.9	ND	0.88	
74-83-9	Bromomethane	ND	1.9	ND	0.50	
75-00-3	Chloroethane	ND	1.9	ND	0.73	
67-64-1	Acetone	ND	19	ND	8.2	
75-69-4	Trichlorofluoromethane	ND	1.9	ND	0.34	
107-13-1	Acrylonitrile	ND	1.9	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	1.9	ND	0.49	
75-09-2	Methylene chloride	ND	1.9	ND	0.56	
76-13-1	Trichlorotrifluoroethane	ND	1.9	ND	0.25	
75-15-0	Carbon Disulfide	ND	1.9	ND	0.62	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	ND	0.49	
75-34-3	1,1-Dichloroethane	ND	1.9	ND	0.48	
1634-04-4	Methyl tert-Butyl Ether	ND	1.9	ND	0.54	
108-05-4	Vinyl Acetate	ND	3.9	ND	1.1	
78-93-3	2-Butanone (MEK)	ND	1.9	ND	0.66	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	ND	0.49	
67-66-3	Chloroform	ND	1.9	ND	0.40	
107-06-2	1,2-Dichloroethane	ND	1.9	ND	0.48	
71-55-6	1,1,1-Trichloroethane	ND	1.9	ND	0.36	
71-43-2	Benzene	ND	1.9	ND	0.61	
56-23-5	Carbon Tetrachloride	ND	1.9	ND	0.31	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **PNL-F75-1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-001

Test Code: Modified EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: 1.0 Liter Summa Canister
Test Notes:
Container ID: ISC00012

Date Collected: 6/30/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.40 Liter(s)

Pi 1 = 1.2 Pf 1 = 10.0

D.F. = 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	1.9	ND	0.42	
75-27-4	Bromodichloromethane	ND	1.9	ND	0.29	
79-01-6	Trichloroethene	ND	1.9	ND	0.36	
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	ND	0.43	
108-10-1	4-Methyl-2-pentanone	ND	1.9	ND	0.47	
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	ND	0.43	
79-00-5	1,1,2-Trichloroethane	ND	1.9	ND	0.36	
108-88-3	Toluene	ND	1.9	ND	0.51	
591-78-6	2-Hexanone	ND	1.9	ND	0.47	
124-48-1	Dibromochloromethane	ND	1.9	ND	0.23	
106-93-4	1,2-Dibromoethane	ND	1.9	ND	0.25	
127-18-4	Tetrachloroethene	ND	1.9	ND	0.29	
108-90-7	Chlorobenzene	ND	1.9	ND	0.42	
100-41-4	Ethylbenzene	ND	1.9	ND	0.45	
136777-61-2	*m,p*-Xylenes	ND	3.9	ND	0.89	
75-25-2	Bromoform	ND	1.9	ND	0.19	
100-42-5	Styrene	ND	1.9	ND	0.46	
95-47-6	o-Xylene	ND	1.9	ND	0.45	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	ND	0.28	
541-73-1	1,3-Dichlorobenzene	ND	1.9	ND	0.32	
106-46-7	1,4-Dichlorobenzene	ND	1.9	ND	0.32	
95-50-1	1,2-Dichlorobenzene	ND	1.9	ND	0.32	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RU Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **PNL-F75-1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-001

Tentatively Identified Compounds

Test Code: Modified EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: 1.0 Liter Summa Canister
Test Notes:
Container ID: ISC00012

Date Collected: 6/30/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.40 Liter(s)

Pi 1 = 1.2 Pf 1 = 10.0
D.F. = 1.55

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
	No Compounds Detected		

Verified By: RL Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-BLK**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00391

Date Collected: 6/28/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 1.00 Liter(s)

Pi 1 = 0.6 Pf 1 = 3.5

D.F. = 1.19

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.60	ND	0.29	
75-01-4	Vinyl Chloride	ND	0.60	ND	0.23	
106-99-0	1,3-Butadiene	ND	0.60	ND	0.27	
74-83-9	Bromomethane	ND	0.60	ND	0.15	
75-00-3	Chloroethane	ND	0.60	ND	0.23	
67-64-1	Acetone	ND	6.0	ND	2.5	
75-69-4	Trichlorofluoromethane	ND	0.60	ND	0.11	
107-13-1	Acrylonitrile	ND	0.60	ND	0.27	
75-35-4	1,1-Dichloroethene	ND	0.60	ND	0.15	
75-09-2	Methylene chloride	ND	0.60	ND	0.17	
76-13-1	Trichlorotrifluoroethane	ND	0.60	ND	0.08	
75-15-0	Carbon Disulfide	ND	0.60	ND	0.19	
156-60-5	trans-1,2-Dichloroethene	ND	0.60	ND	0.15	
75-34-3	1,1-Dichloroethane	ND	0.60	ND	0.15	
1634-04-4	Methyl tert-Butyl Ether	ND	0.60	ND	0.17	
108-05-4	Vinyl Acetate	ND	1.2	ND	0.34	
78-93-3	2-Butanone (MEK)	ND	0.60	ND	0.20	
156-59-2	cis-1,2-Dichloroethene	ND	0.60	ND	0.15	
67-66-3	Chloroform	ND	0.60	ND	0.12	
107-06-2	1,2-Dichloroethane	ND	0.60	ND	0.15	
71-55-6	1,1,1-Trichloroethane	ND	0.60	ND	0.11	
71-43-2	Benzene	ND	0.60	ND	0.19	
56-23-5	Carbon Tetrachloride	ND	0.60	ND	0.09	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-BLK**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00391

Date Collected: 6/28/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 1.00 Liter(s)

Pi 1 = 0.6 Pf 1 = 3.5
D.F. = 1.19

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.60	ND	0.13	
75-27-4	Bromodichloromethane	ND	0.60	ND	0.09	
79-01-6	Trichloroethene	ND	0.60	ND	0.11	
10061-01-5	cis-1,3-Dichloropropene	ND	0.60	ND	0.13	
108-10-1	4-Methyl-2-pentanone	ND	0.60	ND	0.15	
10061-02-6	trans-1,3-Dichloropropene	ND	0.60	ND	0.13	
79-00-5	1,1,2-Trichloroethane	ND	0.60	ND	0.11	
108-88-3	Toluene	ND	0.60	ND	0.16	
591-78-6	2-Hexanone	ND	0.60	ND	0.15	
124-48-1	Dibromochloromethane	ND	0.60	ND	0.07	
106-93-4	1,2-Dibromoethane	ND	0.60	ND	0.08	
127-18-4	Tetrachloroethene	ND	0.60	ND	0.09	
108-90-7	Chlorobenzene	ND	0.60	ND	0.13	
100-41-4	Ethylbenzene	ND	0.60	ND	0.14	
136777-61-2	*m,p* -Xylenes	ND	1.2	ND	0.27	
75-25-2	Bromoform	ND	0.60	ND	0.058	
100-42-5	Styrene	ND	0.60	ND	0.14	
95-47-6	o-Xylene	ND	0.60	ND	0.14	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.60	ND	0.09	
541-73-1	1,3-Dichlorobenzene	ND	0.60	ND	0.10	
106-46-7	1,4-Dichlorobenzene	ND	0.60	ND	0.10	
95-50-1	1,2-Dichlorobenzene	ND	0.60	ND	0.10	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-BLK**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-002

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00391

Date Collected: 6/28/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 1.00 Liter(s)

Pi 1 = 0.6 Pf 1 = 3.5
D.F. = 1.19

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
	No Compounds Detected		

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00125

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.060 Liter(s)
0.020 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	10	ND	4.9	
75-01-4	Vinyl Chloride	ND	10	ND	4.0	
106-99-0	1,3-Butadiene	ND	10	ND	4.6	
74-83-9	Bromomethane	ND	10	ND	2.6	
75-00-3	Chloroethane	ND	10	ND	3.9	
67-64-1	Acetone	ND	100	ND	43	
75-69-4	Trichlorofluoromethane	ND	10	ND	1.8	
107-13-1	Acrylonitrile	ND	10	ND	4.7	
75-35-4	1,1-Dichloroethene	ND	10	ND	2.6	
75-09-2	Methylene chloride	ND	10	ND	2.9	
76-13-1	Trichlorotrifluoroethane	ND	10	ND	1.3	
75-15-0	Carbon Disulfide	ND	10	ND	3.3	
156-60-5	trans-1,2-Dichloroethene	ND	10	ND	2.6	
75-34-3	1,1-Dichloroethane	ND	10	ND	2.5	
1634-04-4	Methyl tert-Butyl Ether	ND	10	ND	2.8	
108-05-4	Vinyl Acetate	ND	20	ND	5.8	
78-93-3	2-Butanone (MEK)	ND	10	ND	3.4	
156-59-2	cis-1,2-Dichloroethene	ND	10	ND	2.6	
67-66-3	Chloroform	ND	10	ND	2.1	
107-06-2	1,2-Dichloroethane	ND	10	ND	2.5	
71-55-6	1,1,1-Trichloroethane	ND	10	ND	1.9	
71-43-2	Benzene	**1,200**	10	**380**	3.2	
56-23-5	Carbon Tetrachloride	ND	10	ND	1.6	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00125

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.060 Liter(s)
0.020 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	10	ND	2.2	
75-27-4	Bromodichloromethane	ND	10	ND	1.5	
79-01-6	Trichloroethene	ND	10	ND	1.9	
10061-01-5	cis-1,3-Dichloropropene	ND	10	ND	2.2	
108-10-1	4-Methyl-2-pentanone	ND	10	ND	2.5	
10061-02-6	trans-1,3-Dichloropropene	ND	10	ND	2.2	
79-00-5	1,1,2-Trichloroethane	ND	10	ND	1.9	
108-88-3	Toluene	**580**	10	**150**	2.7	
591-78-6	2-Hexanone	ND	10	ND	2.5	
124-48-1	Dibromochloromethane	ND	10	ND	1.2	
106-93-4	1,2-Dibromoethane	ND	10	ND	1.3	
127-18-4	Tetrachloroethene	ND	10	ND	1.5	
108-90-7	Chlorobenzene	ND	10	ND	2.2	
100-41-4	Ethylbenzene	**5,200**	10	**1,200**	2.3	
136777-61-2	*m,p* -Xylenes	ND	20	ND	4.7	
75-25-2	Bromoform	ND	10	ND	0.98	
100-42-5	Styrene	**89**	10	**21**	2.4	
95-47-6	o-Xylene	**11**	10	**2.6**	2.3	
79-34-5	1,1,2,2-Tetrachloroethane	ND	10	ND	1.5	
541-73-1	1,3-Dichlorobenzene	ND	10	ND	1.7	
106-46-7	1,4-Dichlorobenzene	ND	10	ND	1.7	
95-50-1	1,2-Dichlorobenzene	ND	10	ND	1.7	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-003

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00125

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.060 Liter(s)
0.020 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5
D.F. = 1.22

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
23.10	Cumene	900	
23.95	Propylbenzene	200	
24.58	alpha-Methylstyrene	2,000	
25.40	$C_{10}H_{14}$ Aromatic Compound	1,000	
25.62	C_9H_{10} Compound	3,000	
26.13	Diethylbenzene Isomer	2,000	
26.27	Diethylbenzene Isomer	1,000	
26.41	Diethylbenzene Isomer	400	
27.31	$C_{10}H_{12}$ Compound	900	
28.57	Naphthalene	1,000	
28.65	Benzothiophene Isomer	600	
31.03	Diphenyl	2,000	
31.64	Diphenylmethane	500	
32.41	Methyldiphenyl Isomer + $C_{14}H_{14}$ Compound	200	
32.91	Stilbene Isomer + Dibenzyl	300	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RU Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00473

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.3 Pf 1 = 3.5

D.F. = 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	12	ND	5.9	
75-01-4	Vinyl Chloride	ND	12	ND	4.7	
106-99-0	1,3-Butadiene	ND	12	ND	5.5	
74-83-9	Bromomethane	ND	12	ND	3.1	
75-00-3	Chloroethane	ND	12	ND	4.6	
67-64-1	Acetone	ND	120	ND	51	
75-69-4	Trichlorofluoromethane	ND	12	ND	2.2	
107-13-1	Acrylonitrile	ND	12	ND	5.6	
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	
75-09-2	Methylene chloride	ND	12	ND	3.5	
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	
75-15-0	Carbon Disulfide	**920**	12	**300**	3.9	
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	
75-34-3	1,1-Dichloroethane	ND	12	ND	3.0	
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	
108-05-4	Vinyl Acetate	ND	24	ND	6.9	
78-93-3	2-Butanone (MEK)	**33**	12	**11**	4.1	
156-59-2	cis-1,2-Dichloroethene	ND	12	ND	3.1	
67-66-3	Chloroform	ND	12	ND	2.5	
107-06-2	1,2-Dichloroethane	ND	12	ND	3.0	
71-55-6	1,1,1-Trichloroethane	ND	12	ND	2.2	
71-43-2	Benzene	ND	12	ND	3.8	
56-23-5	Carbon Tetrachloride	ND	12	ND	1.9	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/14/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00473

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.3 Pf 1 = 3.5
D.F. = 1.21

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.6	
75-27-4	Bromodichloromethane	ND	12	ND	1.8	
79-01-6	Trichloroethene	ND	12	ND	2.3	
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.2	
108-88-3	Toluene	**30**	12	**8.0**	3.2	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.4	
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	
127-18-4	Tetrachloroethene	ND	12	ND	1.8	
108-90-7	Chlorobenzene	ND	12	ND	2.6	
100-41-4	Ethylbenzene	**290**	12	**67**	2.8	
136777-61-2	*m,p* -Xylenes	**48**	24	**11**	5.6	
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	**12,000**	12	**2,800**	2.8	
95-47-6	o-Xylene	**32**	12	**7.3**	2.8	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.0	
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.0	
95-50-1	1,2-Dichlorobenzene	ND	12	ND	2.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-004

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00473

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.3 Pf 1 = 3.5
D.F. = 1.21

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
23.71	Benzaldehyde	3,000	
24.59	alpha-Methylstyrene	5,000	
25.40	$C_{10}H_{14}$ Aromatic Compound	3,000	
25.62	C_9H_{10} Compound	4,000	
26.14	Diethylbenzene Isomer	2,000	
26.21	Acetophenone	5,000	
26.27	Diethylbenzene Isomer	2,000	
27.31	$C_{10}H_{12}$ Compound	2,000	
28.57	Naphthalene	3,000	
28.66	Triethylbenzene Isomer	1,000	
28.85	Triethylbenzene Isomer	1,000	
29.14	Triethylbenzene Isomer	900	
30.06	Methylnaphthalene Isomer	900	
31.04	Diphenyl	5,000	
31.64	Diphenylmethane	2,000	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-TR**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00433

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	12	ND	5.9	
75-01-4	Vinyl Chloride	ND	12	ND	4.8	
106-99-0	1,3-Butadiene	ND	12	ND	5.5	
74-83-9	Bromomethane	ND	12	ND	3.1	
75-00-3	Chloroethane	ND	12	ND	4.6	
67-64-1	Acetone	ND	120	ND	51	
75-69-4	Trichlorofluoromethane	ND	12	ND	2.2	
107-13-1	Acrylonitrile	ND	12	ND	5.6	
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	
75-09-2	Methylene chloride	ND	12	ND	3.5	
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	
75-15-0	Carbon Disulfide	**730**	12	**240**	3.9	
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	
75-34-3	1,1-Dichloroethane	ND	12	ND	3.0	
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	
108-05-4	Vinyl Acetate	ND	24	ND	6.9	
78-93-3	2-Butanone (MEK)	**26**	12	**8.8**	4.1	
156-59-2	cis-1,2-Dichloroethene	ND	12	ND	3.1	
67-66-3	Chloroform	ND	12	ND	2.5	
107-06-2	1,2-Dichloroethane	ND	12	ND	3.0	
71-55-6	1,1,1-Trichloroethane	ND	12	ND	2.2	
71-43-2	Benzene	ND	12	ND	3.8	
56-23-5	Carbon Tetrachloride	ND	12	ND	1.9	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: KG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-TR**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00433

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/7 - 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5

D.F. = 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.6	
75-27-4	Bromodichloromethane	ND	12	ND	1.8	
79-01-6	Trichloroethene	ND	12	ND	2.3	
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.2	
108-88-3	Toluene	**24**	12	**6.3**	3.2	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.4	
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	
127-18-4	Tetrachloroethene	ND	12	ND	1.8	
108-90-7	Chlorobenzene	ND	12	ND	2.7	
100-41-4	Ethylbenzene	**230**	12	**54**	2.8	
136777-61-2	*m,p* -Xylenes	**39**	24	**8.9**	5.6	
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	**9,400**	12	**2,200**	2.9	
95-47-6	o-Xylene	**26**	12	**5.9**	2.8	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.0	
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.0	
95-50-1	1,2-Dichlorobenzene	ND	12	ND	2.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RU Date: 7/16/04

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-U-TR**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-005

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00433

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.050 Liter(s)
0.0050 Liter(s)

Pi 1 = 0.2 Pf 1 = 3.5
D.F. = 1.22

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
23.71	Benzaldehyde	**3,000**	
24.59	alpha-Methylstyrene	**5,000**	
25.40	$C_{10}H_{14}$ Aromatic Compound	**3,000**	
25.62	C_9H_{10} Compound	**4,000**	
26.15	Diethylbenzene Isomer	**2,000**	
26.22	Acetophenone	**5,000**	
26.27	Diethylbenzene Isomer	**2,000**	
27.31	$C_{10}H_{12}$ Compound	**1,000**	
28.58	Naphthalene	**3,000**	
28.66	Triethylbenzene Isomer	**1,000**	
28.85	Triethylbenzene Isomer	**1,000**	
30.07	Methylnaphthalene Isomer	**1,000**	
31.05	Diphenyl	**6,000**	
31.64	Diphenylmethane	**2,000**	
32.40	Methyldiphenyl Isomer + $C_{14}H_{14}$ Compound	**1,000**	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RL Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00022

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.10 Liter(s)
0.010 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5

D.F. = 1.23

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	6.2	ND	3.0	
75-01-4	Vinyl Chloride	ND	6.2	ND	2.4	
106-99-0	1,3-Butadiene	ND	6.2	ND	2.8	
74-83-9	Bromomethane	ND	6.2	ND	1.6	
75-00-3	Chloroethane	ND	6.2	ND	2.3	
67-64-1	Acetone	**300**	62	**130**	26	
75-69-4	Trichlorofluoromethane	ND	6.2	ND	1.1	
107-13-1	Acrylonitrile	ND	6.2	ND	2.8	
75-35-4	1,1-Dichloroethene	ND	6.2	ND	1.6	
75-09-2	Methylene chloride	ND	6.2	ND	1.8	
76-13-1	Trichlorotrifluoroethane	ND	6.2	ND	0.80	
75-15-0	Carbon Disulfide	**11**	6.2	**3.6**	2.0	
156-60-5	trans-1,2-Dichloroethene	ND	6.2	ND	1.6	
75-34-3	1,1-Dichloroethane	ND	6.2	ND	1.5	
1634-04-4	Methyl tert-Butyl Ether	ND	6.2	ND	1.7	
108-05-4	Vinyl Acetate	ND	12	ND	3.5	
78-93-3	2-Butanone (MEK)	**14**	6.2	**4.9**	2.1	
156-59-2	cis-1,2-Dichloroethene	ND	6.2	ND	1.6	
67-66-3	Chloroform	ND	6.2	ND	1.3	
107-06-2	1,2-Dichloroethane	ND	6.2	ND	1.5	
71-55-6	1,1,1-Trichloroethane	ND	6.2	ND	1.1	
71-43-2	Benzene	**2,000**	6.2	**620**	1.9	
56-23-5	Carbon Tetrachloride	ND	6.2	ND	0.98	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00022

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.10 Liter(s)
0.010 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5

D.F. = 1.23

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	6.2	ND	1.3	
75-27-4	Bromodichloromethane	ND	6.2	ND	0.92	
79-01-6	Trichloroethene	ND	6.2	ND	1.1	
10061-01-5	cis-1,3-Dichloropropene	ND	6.2	ND	1.4	
108-10-1	4-Methyl-2-pentanone	ND	6.2	ND	1.5	
10061-02-6	trans-1,3-Dichloropropene	ND	6.2	ND	1.4	
79-00-5	1,1,2-Trichloroethane	ND	6.2	ND	1.1	
108-88-3	Toluene	**930**	6.2	**250**	1.6	
591-78-6	2-Hexanone	ND	6.2	ND	1.5	
124-48-1	Dibromochloromethane	ND	6.2	ND	0.72	
106-93-4	1,2-Dibromoethane	ND	6.2	ND	0.80	
127-18-4	Tetrachloroethene	ND	6.2	ND	0.91	
108-90-7	Chlorobenzene	ND	6.2	ND	1.3	
100-41-4	Ethylbenzene	**9,500**	6.2	**2,200**	1.4	
136777-61-2	*m,p*-Xylenes	**22**	12	**5.0**	2.8	
75-25-2	Bromoform	ND	6.2	ND	0.60	
100-42-5	Styrene	**190**	6.2	**46**	1.4	
95-47-6	o-Xylene	**21**	6.2	**4.9**	1.4	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.2	ND	0.90	
541-73-1	1,3-Dichlorobenzene	ND	6.2	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	6.2	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	6.2	ND	1.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RS Date: 7/16/04

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-006

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00022

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.10 Liter(s)
0.010 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5
D.F. = 1.23

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
23.11	Cumene	1,000	
23.95	Propylbenzene	400	
24.13	3-Ethyltoluene	400	
24.59	alpha-Methylstyrene	3,000	
25.40	$C_{10}H_{14}$ Aromatic Compound	2,000	
25.63	C_9H_{10} Compound	3,000	
26.14	Diethylbenzene Isomer	2,000	
26.30	Acetophenone	500	
26.27	Diethylbenzene Isomer	1,000	
26.41	Diethylbenzene Isomer	700	
27.31	$C_{10}H_{12}$ Compound	1,000	
28.58	Naphthalene	2,000	
28.66	Triethylbenzene Isomer	900	
31.04	Diphenyl	2,000	
31.64	Diphenylmethane	500	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00575

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.025 Liter(s)
0.0010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	25	ND	12	
75-01-4	Vinyl Chloride	ND	25	ND	9.7	
106-99-0	1,3-Butadiene	ND	25	ND	11	
74-83-9	Bromomethane	ND	25	ND	6.4	
75-00-3	Chloroethane	ND	25	ND	9.4	
67-64-1	Acetone	ND	250	ND	100	
75-69-4	Trichlorofluoromethane	ND	25	ND	4.4	
107-13-1	Acrylonitrile	ND	25	ND	11	
75-35-4	1,1-Dichloroethene	ND	25	ND	6.3	
75-09-2	Methylene chloride	ND	25	ND	7.1	
76-13-1	Trichlorotrifluoroethane	ND	25	ND	3.2	
75-15-0	Carbon Disulfide	**1,400**	25	**450**	8.0	
156-60-5	trans-1,2-Dichloroethene	ND	25	ND	6.3	
75-34-3	1,1-Dichloroethane	ND	25	ND	6.1	
1634-04-4	Methyl tert-Butyl Ether	ND	25	ND	6.9	
108-05-4	Vinyl Acetate	ND	50	ND	14	
78-93-3	2-Butanone (MEK)	**67**	25	**23**	8.4	
156-59-2	cis-1,2-Dichloroethene	ND	25	ND	6.3	
67-66-3	Chloroform	ND	25	ND	5.1	
107-06-2	1,2-Dichloroethane	ND	25	ND	6.1	
71-55-6	1,1,1-Trichloroethane	ND	25	ND	4.5	
71-43-2	Benzene	ND	25	ND	7.8	
56-23-5	Carbon Tetrachloride	ND	25	ND	3.9	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00575

Date Collected: 7/1/04
Date Received: 7/1/04
Date(s) Analyzed: 7/8/04
Volume(s) Analyzed: 0.025 Liter(s)
0.0010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	25	ND	5.4	
75-27-4	Bromodichloromethane	ND	25	ND	3.7	
79-01-6	Trichloroethene	**170**	25	**32**	4.6	
10061-01-5	cis-1,3-Dichloropropene	ND	25	ND	5.5	
108-10-1	4-Methyl-2-pentanone	ND	25	ND	6.1	
10061-02-6	trans-1,3-Dichloropropene	ND	25	ND	5.5	
79-00-5	1,1,2-Trichloroethane	ND	25	ND	4.5	
108-88-3	Toluene	**93**	25	**25**	6.6	
591-78-6	2-Hexanone	ND	25	ND	6.1	
124-48-1	Dibromochloromethane	ND	25	ND	2.9	
106-93-4	1,2-Dibromoethane	ND	25	ND	3.2	
127-18-4	Tetrachloroethene	**13,000**	25	**1,900**	3.7	
108-90-7	Chlorobenzene	ND	25	ND	5.4	
100-41-4	Ethylbenzene	**140**	25	**33**	5.7	
136777-61-2	*m,p*-Xylenes	ND	50	ND	11	
75-25-2	Bromoform	ND	25	ND	2.4	
100-42-5	Styrene	**1,400**	25	**320**	5.8	
95-47-6	o-Xylene	ND	25	ND	5.7	
79-34-5	1,1,2,2-Tetrachloroethane	ND	25	ND	3.6	
541-73-1	1,3-Dichlorobenzene	ND	25	ND	4.1	
106-46-7	1,4-Dichlorobenzene	ND	25	ND	4.1	
95-50-1	1,2-Dichlorobenzene	ND	25	ND	4.1	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C1-T**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P2401412-007

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Michelle Sakamoto
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00575

Date Collected: 7/1/04
Date Received: 7/1/04
Date Analyzed: 7/8/04
Volume(s) Analyzed: 0.025 Liter(s)
0.0010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5
D.F. = 1.24

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.83	Carbonyl Sulfide	200	
5.27	Acetaldehyde	200	
20.44	Trimethylcyclohexane Isomer	100	
24.57	alpha-Methylstyrene	400	
25.39	$C_{10}H_{14}$ Aromatic Compound	200	
25.92	C_9H_{10} Compound	300	
26.12	Diethylbenzene Isomer	200	
28.57	Naphthalene	100	
31.03	Diphenyl	200	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P040707-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date(s) Analyzed: 7/7/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene chloride	ND	0.50	ND	0.14	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	0.50	ND	0.16	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	1.0	ND	0.28	
78-93-3	2-Butanone (MEK)	ND	0.50	ND	0.17	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/16/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P040707-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date(s) Analyzed: 7/7/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
136777-61-2	*m,p* -Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/16/04

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401412
CAS Sample ID: P040707-MB

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/7/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
	No Compounds Detected		

Verified By: RC Date: 7/16/04

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: GeoSyntec Consultants, Inc. Work order: P2401412

Project: Ascon LF/SB0202-31H

Sample(s) received on: 7/1/04 Date opened: 7/1/04 by: SM

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method/SOP.

		Yes	No	N/A
1	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature NA °C			
	Blank Temperature NA °C			
9	Is pH (acid) **preservation** necessary, according to method/SOP or Client specified information?	☐	☒	☐
	Is there a client indication that the submitted samples are **pH** (acid) preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2401412-001			NA	
P2401412-002			NA	
P2401412-003			NA	
P2401412-004			NA	
P2401412-005			NA	
P2401412-006			NA	
P2401412-007			NA	

Explain any discrepancies: (include lab sample ID numbers):

Columbia Analytical Services INC.
An Employee - Owned Company

Air Quality Laboratory
2665 Park Center Drive, Suite D
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Chain of Custody Record
Analytical Service Request

Client/Address: GeoSyntec, 2100 Main St. # 150, HB, CA 92648	Project Name: Ascon LF	Analysis	CAS Project No.: P2401412
Phone: (714) 969-0800 Fax: (714) 969-0820	Project Number: SB0202-31H		Cooler / Blank: Temp_____
Email: mreardon@geosyntec.com	Sampling Location: HB, CA		
Contact: Mike Reardon	Sampler (Signature): [signature]	P.O. #/Billing Information: SB0202-31H GeoSyntec	Comments (e.g., preservative or specific instructions)

Client Sample ID	Date Collected	Time Collected	Lab Sample No.	Type of Sample	Container ID (Serial #)	Flow Controller (Serial #)	Sample Volume (Liters)	To 1st/To 3 PROJECT LIST	Expected Turnaround Time: 24 Hr, 48 Hr, 3 Day, 4 Day, 5 Day Standard (10 Business Days)	Comments
PNL-F75-1-T	06-30-04	15:19	-1	SURFACE FLUX	06769	1SC00012	1	X	10	
SF-BLK	06-28-04	1406	-2	SURFACE FLUX	0300	1SC00391	6			
SF-STY1-U-T	07-01-04	9:34	-3	"	0339	1SC00125	6			
SF-STY2-U-T	"	9:45	-4	"	01529	1SC00473	6			
SF-STY2-U-TR	"	10:13	-5		01490	1SC00433	6			
SF-STY1-C1-T		11:04	-6		0522	1SC00022	6			
SF-STY2-C1-T		11:55	-7		01510	1SC00575	6	X		

	Date:	Time:		Date:	Time:
Relinquished by: (Signature) [signature]	07-01-04	11:45	Received by: (Signature) [signature]	7-01-04	11:45
Relinquished by: (Signature) [signature]	7-01-04	1200	Received by: (Signature) [signature]	7/1/04	1200
Relinquished by: (Signature) [signature]	7/1/04	1605	Received by: (Signature) [signature]	7/1/04	1605

Additional Comments

2655 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

LABORATORY REPORT

Client:	GEOSYNTEC CONSULTANTS, INC.	Date of Report:	07/20/04
Address:	2100 Main Street, Suite 150	Date Received:	07/02/04
	Huntington Beach, CA 92648	CAS Project No:	P2401414
Contact:	Mr. Mike Reardon	Purchase Order:	SB0202-31H

Client Project ID: Ascon LF/SB0202-31H

Two (2) Tedlar Bag Samples labeled: "SF-STY1-C2-S" and "SF-STY2-C2-S"

The samples were received at the laboratory under chain of custody on July 2, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per modified SCAQMD Method 307-91 and ASTM D 5504-01 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:

Zheng Wang
Analytical Chemist
Air Quality Laboratory

Reviewed and Approved:

Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C2-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401414
CAS Sample ID: P2401414-001

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 13:05
Date Received: 7/2/04
Date Analyzed: 7/2/04
Time Analyzed: 11:28
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**7.06**	7.00	**5.07**	5.00	
463-58-1	Carbonyl Sulfide	**37.3**	12.0	**15.2**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**48.2**	7.80	**15.5**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	**18.1**	18.0	**4.91**	5.00	**J**
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	**15.2**	18.0	**4.23**	5.00	**J**
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The analyte was positively identified below the laboratory method reporting limit;
the associated numerical value is considered estimated.

Verified By: KH Date: 07/19/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C2-S**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401414
CAS Sample ID: P2401414-002

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: 7/1/04
Time Collected: 13:10
Date Received: 7/2/04
Date Analyzed: 7/2/04
Time Analyzed: 11:52
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**22.3**	7.00	**16.0**	5.00	
463-58-1	Carbonyl Sulfide	**95.7**	12.0	**39.0**	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	**428**	7.80	**137**	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: KMH Date: 07/19/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202-31H**

CAS Project ID: P2401414
CAS Sample ID: P040702-MB

Test Code: ASTM D 5504-01
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Zheng Wang/Wade Henton
Sampling Media: Tedlar Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/02/04
Time Analyzed: 10:27
Volume(s) Analyzed: 1.0 ml(s)

D.F.= 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.00	ND	5.00	
463-58-1	Carbonyl Sulfide	ND	12.0	ND	5.00	
74-93-1	Methyl Mercaptan	ND	9.80	ND	5.00	
75-08-1	Ethyl Mercaptan	ND	13.0	ND	5.00	
75-18-3	Dimethyl Sulfide	ND	13.0	ND	5.00	
75-15-0	Carbon Disulfide	ND	7.80	ND	2.50	
75-33-2	Isopropyl Mercaptan	ND	16.0	ND	5.00	
75-66-1	tert-Butyl Mercaptan	ND	18.0	ND	5.00	
107-03-9	n-Propyl Mercaptan	ND	16.0	ND	5.00	
624-89-5	Ethyl Methyl Sulfide	ND	16.0	ND	5.00	
110-02-1	Thiophene	ND	17.0	ND	5.00	
513-44-0	Isobutyl Mercaptan	ND	18.0	ND	5.00	
352-93-2	Diethyl Sulfide	ND	18.0	ND	5.00	
109-79-5	n-Butyl Mercaptan	ND	18.0	ND	5.00	
624-92-0	Dimethyl Disulfide	ND	9.60	ND	2.50	
616-44-4	3-Methylthiophene	ND	20.0	ND	5.00	
110-01-0	Tetrahydrothiophene	ND	18.0	ND	5.00	
638-02-8	2,5-Dimethylthiophene	ND	23.0	ND	5.00	
872-55-9	2-Ethylthiophene	ND	23.0	ND	5.00	
110-81-6	Diethyl Disulfide	ND	12.0	ND	2.50	

ND = Compound was analyzed for, but not detected above the **laboratory detection limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RJH Date: 07/19/04

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: GeoSyntec Consultants, Inc. Work order: P2401414

Project: Ascon LF/SB0202-31H

Sample(s) received on: 7/2/04 Date opened: 7/2/04 by: SM

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method/SOP.

		Yes	No	N/A
1	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature NA °C			
	Blank Temperature NA °C			
9	Is pH (acid) **preservation** necessary, according to method/SOP or Client specified information?	☐	☒	☐
	Is there a client indication that the submitted samples are **pH** (acid) preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2401414-001			NA	
P2401414-002			NA	

Explain any discrepancies: (include lab sample ID numbers):

Columbia Analytical Services, Inc.
An Employee - Owned Company

Air Quality Laboratory
2665 Park Center Drive, Suite D
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Chain of Custody Record
Analytical Service Request

Client/Address: GEOSYNTEC CONSULTANTS, 2100 MAIN ST #150, HUNTINGTON BEACH, CA 92648	Project Name: ASCON LF	Analysis	CAS Project No.: P2401414
	Project Number: SB0202-31H		Cooler / Blank: Temp_____
Phone: (714) 969-0800 Fax: (714) 969-0820	Sampling Location: HUNTINGTON BEACH, CA		
Email: MREARDON@GEOSYNTEC.COM	P.O. #/Billing Information: SB0202-31H GEOSYNTEC		
Contact: MIKE REARDON Sampler (Signature):			Comments (e.g., preservative or specific instructions)

Client Sample ID	Date Collected	Time Collected	Lab Sample No.	Type of Sample	Container ID (Serial #)	Flow Controller (Serial #)	Sample Volume (Liters)	Sulfur Species				Expected Turnaround Time: 24 Hr 48Hr 3Day 4Day 5Day Standard (10 Business Days)	
SF-STY1-C2-S	7-01-04	1305		TEDLAR	–	–	1	X				10	
SF-STY2-C2-S	07-01-04	1310		TEDLAR	–	–	1	X				10	

	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	7-01-04	1508		7-01-04	1508
Relinquished by: (Signature)	7-01-04	1645	Received by: (Signature) Aharon Malone	7/2/04	1013
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Additional Comments

9

2665 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

LABORATORY REPORT

Client:	GEOSYNTEC CONSULTANTS, INC.	Date of Report:	07/22/04
Address:	2100 Main Street, Suite 150	Date Received:	07/07/04
	Huntington Beach, CA 92648	CAS Project No:	P2401446
Contact:	Mr. Mike Reardon	Purchase Order:	SB0202 / 31H

Client Project ID: Ascon LF/SB0202 / 31H

Two (2) Stainless Steel Summa Canisters labeled: "SF-STY1-C2-T" and "SF-STY2-C2-T"

The samples were received at the laboratory under chain of custody on July 7, 2004. The samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

C1 through C6 Hydrocarbon Analysis

The samples were analyzed per modified EPA Method TO-3 for C_1 through $>C_6$ hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID).

Volatile Organic Compound Analysis

The samples were also analyzed by combined gas chromatography/mass spectrometry (GC/MS) for selected volatile organic compounds and tentatively identified compounds. The analyses were performed according to the methodology outlined in EPA Method TO-15. The analyses were performed by gas chromatography/mass spectrometry, utilizing a direct cryogenic trapping technique. The analytical system used was comprised of a Hewlett Packard Model 5972 GC/MS/DS interfaced to a Tekmar AutoCan Elite whole air inlet system/cryogenic concentrator. A 100% Dimethylpolysiloxane capillary column (RT_x-1, Restek Corporation, Bellefonte, PA) was used to achieve chromatographic separation.

Reviewed and Approved:

Aristotle Bragasin
Analytical Chemist
Air Quality Laboratory

Reviewed and Approved:

Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

2665 Park Center Drive, Suite D Simi Valley, California 93065 (805) 526-7161 ph (805) 526-7270 fax

Columbia Analytical Services INC.
An Employee - Owned Company

CAS Project No: P2401446

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID : P2401446
CAS Sample ID : P2401446-001

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Regan Lau
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00158

Date Collected: 7/1/04
Date Received: 7/7/04
Date Analyzed: 7/9/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**0.75**	0.62	
C_2 as Ethane	ND	0.62	
C_3 as Propane	ND	0.62	
C_4 as n-Butane	ND	0.62	
C_5 as n-Pentane	ND	0.62	
C_6 as n-Hexane	ND	0.62	
C_6+ as n-Hexane	**4.9**	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID : P2401446
CAS Sample ID : P2401446-002

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Regan Lau
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00537

Date Collected: 7/1/04
Date Received: 7/7/04
Date Analyzed: 7/9/04
Volume(s) Analyzed: 1.0 ml

Pi 1 = 0.1 Pf 1 = 3.5

D.F. = 1.23

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	**1.5**	0.61	
C_2 as Ethane	ND	0.61	
C_3 as Propane	ND	0.61	
C_4 as n-Butane	ND	0.61	
C_5 as n-Pentane	ND	0.61	
C_6 as n-Hexane	ND	0.61	
C_6+ as n-Hexane	ND	1.2	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID : P2401446
CAS Sample ID : P040709-MB

Test Code: Modified EPA TO-3
Instrument ID: HP5890II/GC8/FID
Analyst: Regan Lau
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/09/04
Volume(s) Analyzed: 1.0 ml

D.F. = 1.00

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.50	
C_2 as Ethane	ND	0.50	
C_3 as Propane	ND	0.50	
C_4 as n-Butane	ND	0.50	
C_5 as n-Pentane	ND	0.50	
C_6 as n-Hexane	ND	0.50	
C_6+ as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00158

Date Collected: 7/1/04
Date Received: 7/7/04
Date(s) Analyzed: 7/9 - 7/10/04
Volume(s) Analyzed: 0.050 Liter(s)
0.010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	12	ND	6.0	
75-01-4	Vinyl Chloride	ND	12	ND	4.9	
106-99-0	1,3-Butadiene	ND	12	ND	5.6	
74-83-9	Bromomethane	ND	12	ND	3.2	
75-00-3	Chloroethane	ND	12	ND	4.7	
67-64-1	Acetone	**150**	120	**64**	52	
75-69-4	Trichlorofluoromethane	ND	12	ND	2.2	
107-13-1	Acrylonitrile	ND	12	ND	5.7	
75-35-4	1,1-Dichloroethene	ND	12	ND	3.1	
75-09-2	Methylene chloride	ND	12	ND	3.6	
76-13-1	Trichlorotrifluoroethane	ND	12	ND	1.6	
75-15-0	Carbon Disulfide	ND	12	ND	4.0	
156-60-5	trans-1,2-Dichloroethene	ND	12	ND	3.1	
75-34-3	1,1-Dichloroethane	ND	12	ND	3.1	
1634-04-4	Methyl tert-Butyl Ether	ND	12	ND	3.4	
108-05-4	Vinyl Acetate	ND	25	ND	7.0	
78-93-3	2-Butanone (MEK)	ND	12	ND	4.2	
156-59-2	cis-1,2-Dichloroethene	ND	12	ND	3.1	
67-66-3	Chloroform	ND	12	ND	2.5	
107-06-2	1,2-Dichloroethane	ND	12	ND	3.1	
71-55-6	1,1,1-Trichloroethane	ND	12	ND	2.3	
71-43-2	Benzene	**1,700**	12	**540**	3.9	
56-23-5	Carbon Tetrachloride	ND	12	ND	2.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00158

Date Collected: 7/1/04
Date Received: 7/7/04
Date(s) Analyzed: 7/9 - 7/10/04
Volume(s) Analyzed: 0.050 Liter(s)
0.010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	12	ND	2.7	
75-27-4	Bromodichloromethane	ND	12	ND	1.9	
79-01-6	Trichloroethene	ND	12	ND	2.3	
10061-01-5	cis-1,3-Dichloropropene	ND	12	ND	2.7	
108-10-1	4-Methyl-2-pentanone	ND	12	ND	3.0	
10061-02-6	trans-1,3-Dichloropropene	ND	12	ND	2.7	
79-00-5	1,1,2-Trichloroethane	ND	12	ND	2.3	
108-88-3	Toluene	**940**	12	**250**	3.3	
591-78-6	2-Hexanone	ND	12	ND	3.0	
124-48-1	Dibromochloromethane	ND	12	ND	1.5	
106-93-4	1,2-Dibromoethane	ND	12	ND	1.6	
127-18-4	Tetrachloroethene	ND	12	ND	1.8	
108-90-7	Chlorobenzene	ND	12	ND	2.7	
100-41-4	Ethylbenzene	**7,100**	12	**1,600**	2.9	
136777-61-2	*m,p*-Xylenes	**36**	25	**8.4**	5.7	
75-25-2	Bromoform	ND	12	ND	1.2	
100-42-5	Styrene	**120**	12	**27**	2.9	
95-47-6	o-Xylene	**23**	12	**5.2**	2.9	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12	ND	1.8	
541-73-1	1,3-Dichlorobenzene	ND	12	ND	2.1	
106-46-7	1,4-Dichlorobenzene	ND	12	ND	2.1	
95-50-1	1,2-Dichlorobenzene	ND	12	ND	2.1	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RO Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY1-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-001

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00158

Date Collected: 7/1/04
Date Received: 7/7/04
Date Analyzed: 7/10/04
Volume(s) Analyzed: 0.050 Liter(s)
0.010 Liter(s)

Pi 1 = 0.0 Pf 1 = 3.5

D.F. = 1.24

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
6.16	Ethanol	**200**	
6.88	Isopropyl Alcohol	**400**	
23.09	Cumene	**500**	
23.94	Propylbenzene	**200**	
24.12	3-Ethyltoluene	**200**	
24.57	alpha-Methylstyrene	**3,000**	
24.84	C_9H_{10} Compound	**200**	
25.39	$C_{10}H_{14}$ Aromatic Compound	**300**	
25.61	C_9H_{10} Compound	**4,000**	
26.12	Diethylbenzene Isomer	**600**	
26.26	Diethylbenzene Isomer	**400**	
27.31	$C_{10}H_{12}$ Compound	**500**	
28.56	Naphthalene	**600**	
30.91	$C_{14}H_{28}$ Compound	**200**	
31.03	Diphenyl	**300**	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: RC Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00537

Date Collected: 7/1/04
Date Received: 7/7/04
Date(s) Analyzed: 7/10/04
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5

D.F. = 1.23

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.62	ND	0.30	
75-01-4	Vinyl Chloride	ND	0.62	ND	0.24	
106-99-0	1,3-Butadiene	ND	0.62	ND	0.28	
74-83-9	Bromomethane	ND	0.62	ND	0.16	
75-00-3	Chloroethane	ND	0.62	ND	0.23	
67-64-1	Acetone	**96**	6.2	**41**	2.6	
75-69-4	Trichlorofluoromethane	ND	0.62	ND	0.11	
107-13-1	Acrylonitrile	ND	0.62	ND	0.28	
75-35-4	1,1-Dichloroethene	ND	0.62	ND	0.16	
75-09-2	Methylene chloride	ND	0.62	ND	0.18	
76-13-1	Trichlorotrifluoroethane	ND	0.62	ND	0.080	
75-15-0	Carbon Disulfide	**160**	0.62	**51**	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.62	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.62	ND	0.15	
1634-04-4	Methyl tert-Butyl Ether	ND	0.62	ND	0.17	
108-05-4	Vinyl Acetate	ND	1.2	ND	0.35	
78-93-3	2-Butanone (MEK)	**4.9**	0.62	**1.7**	0.21	
156-59-2	cis-1,2-Dichloroethene	ND	0.62	ND	0.16	
67-66-3	Chloroform	**3.2**	0.62	**0.66**	0.13	
107-06-2	1,2-Dichloroethane	ND	0.62	ND	0.15	
71-55-6	1,1,1-Trichloroethane	ND	0.62	ND	0.11	
71-43-2	Benzene	**2.1**	0.62	**0.65**	0.19	
56-23-5	Carbon Tetrachloride	ND	0.62	ND	0.098	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RC Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:
Container ID: SC00537

Date Collected: 7/1/04
Date Received: 7/7/04
Date(s) Analyzed: 7/10/04
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5
D.F. = 1.23

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.62	ND	0.13	
75-27-4	Bromodichloromethane	ND	0.62	ND	0.092	
79-01-6	Trichloroethene	ND	0.62	ND	0.11	
10061-01-5	cis-1,3-Dichloropropene	ND	0.62	ND	0.14	
108-10-1	4-Methyl-2-pentanone	**0.64**	0.62	**0.16**	0.15	
10061-02-6	trans-1,3-Dichloropropene	ND	0.62	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.62	ND	0.11	
108-88-3	Toluene	**3.2**	0.62	**0.84**	0.16	
591-78-6	2-Hexanone	**1.3**	0.62	**0.31**	0.15	
124-48-1	Dibromochloromethane	ND	0.62	ND	0.072	
106-93-4	1,2-Dibromoethane	ND	0.62	ND	0.080	
127-18-4	Tetrachloroethene	**1.3**	0.62	**0.20**	0.091	
108-90-7	Chlorobenzene	**8.3**	0.62	**1.8**	0.13	
100-41-4	Ethylbenzene	**8.9**	0.62	**2.1**	0.14	
136777-61-2	*m,p* -Xylenes	**4.6**	1.2	**1.1**	0.28	
75-25-2	Bromoform	ND	0.62	ND	0.060	
100-42-5	Styrene	**610**	0.62	**140**	0.14	
95-47-6	o-Xylene	**3.0**	0.62	**0.69**	0.14	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.62	ND	0.090	
541-73-1	1,3-Dichlorobenzene	**1.1**	0.62	**0.18**	0.10	
106-46-7	1,4-Dichlorobenzene	**8.0**	0.62	**1.3**	0.10	
95-50-1	1,2-Dichlorobenzene	**0.96**	0.62	**0.16**	0.10	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: _____

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **SF-STY2-C2-T**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P2401446-002

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes: **T**
Container ID: SC00537

Date Collected: 7/1/04
Date Received: 7/7/04
Date Analyzed: 7/10/04
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Pi 1 = 0.1 Pf 1 = 3.5
D.F. = 1.23

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
6.21	Ethanol	200	
6.94	Isopropyl Alcohol	200	
23.71	Benzaldehyde	200	
24.58	alpha-Methylstyrene	200	
25.61	C_9H_{10} Compound	100	
26.19	Acetophenone	80	
28.56	Naphthalene	70	
30.91	$C_{14}H_{28}$ Compound	50	
31.03	Diphenyl	100	
31.64	Diphenylmethane Isomer	100	
32.41	Methyldiphenyl Isomer + $C_{14}H_{14}$ Compound	90	
32.91	Stilbene Isomer + Dibenzyl	80	
33.39	$C_{15}H_{16}$ Compound	70	
33.63	$C_{14}H_{14}$ Compound	60	
33.99	$C_{14}H_{14}$ Compound + $C_{16}H_{18}$ Compound	60	

T = Analyte is a tentatively identified compound, result is estimated.

Verified By: _____ Date: 7/10/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P040709-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date(s) Analyzed: 7/9/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene chloride	ND	0.50	ND	0.14	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	0.50	ND	0.16	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	1.0	ND	0.28	
78-93-3	2-Butanone (MEK)	ND	0.50	ND	0.17	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RG Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P040709-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date(s) Analyzed: 7/9/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
136777-61-2	*m,p* -Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit.**
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: R.G. Date: 7/21/04

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **GeoSyntec Consultants, Inc.**
Client Sample ID: **Method Blank**
Client Project ID: **Ascon LF/SB0202 / 31H**

CAS Project ID: P2401446
CAS Sample ID: P040709-MB

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5972/HP5890 II+/MS2
Analyst: Aristotle Bragasin
Sampling Media: Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/9/04
Volume(s) Analyzed: 1.00 Liter(s)

D.F. = 1.00

GC / MS Ret. Time	Compound Identification	Concentration µg/m³	Data Qualifier
	No Compounds Detected		

Verified By: RC Date: 7/21/04

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: GeoSyntec Consultants, Inc. Work order: P2401446

Project: Ascon LF/SB0202 / 31H

Sample(s) received on: 7/7/04 Date opened: 7/7/04 by: SM

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method/SOP.

		Yes	No	N/A
1	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature NA °C			
	Blank Temperature NA °C			
9	Is pH (acid) **preservation** necessary, according to method/SOP or Client specified information?	☐	☒	☐
	Is there a client indication that the submitted samples are **pH** (acid) preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2401446-001			NA	
P2401446-002			NA	

Explain any discrepancies: (include lab sample ID numbers):

Columbia Analytical Services INC.
An Employee - Owned Company

Air Quality Laboratory
2665 Park Center Drive, Suite D
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Chain of Custody Record
Analytical Service Request

Client/Address: GEOSYNTEC CONSULTANTS, 2100 MAIN ST. #150, HUNTINGTON BEACH, CA 92648	Project Name: ASCOT LF	Analysis	CAS Project No.: P2401446
Phone: (714) 969-0800 Fax: (714) 969-0820	Project Number: SB0202-31H		Cooler / Blank: Temp ____
Email: MREMEDIOS@GEOSYNTEC.COM	Sampling Location: HUNTINGTON BEACH, CA		
Contact: MIKE REMEDIOS	P.O. #/Billing Information: SB0202-31H, GEOSYNTEC		Comments (e.g., preservative or specific instructions)

Client Sample ID	Date Collected	Time Collected	Lab Sample No.	Type of Sample	Container ID (Serial #)	~~Flow Controller~~ (Serial #)	Sample Volume (Liters)	TO 15/10 in TRIPLE TedLar	Expected Turnaround Time: 24 Hr 48Hr 3Day 4Day 5Day Standard (10 Business Days)	Comments
SF-ST41-C2-T	07-01-04	13:05		SOIL GAS	01105	SC00458	6	X	10	
SF-ST42-C2-T	"	13:10		"	00528	SC00537	6	X	10	

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Additional Comments
[signature]	7-01-04	15:08	Lenny Dorge	7-01-04	1508	
Lenny Dorge	Date:	Time:	Received by: (Signature)	Date:	Time:	
Karen Caballero	7-7-04	11:20	Received by: (Signature)	Date: 7-7-04	Time: 5:10 PM	

Richgh M 7-7-04 5:10 PM Wilk 7/7/04

White Copy: Accompanies Samples Yellow Copy: Retained by Client

COC #13-7/03

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CE Schmidt, Ph.D.
Environmental Consultant

ATTACHMENT C

LABORATORY REPORTS

Phases I, II, IV, and VIII- Odor Testing

19200 Live Oak Road Red Bluff, CA 96080 (530) 529-4256 Fax- 4878

Odor Science & Engineering, Inc.
1350 Blue Hills Avenue, Bloomfield, CT 06002
(860) 243-9380 Fax: (860) 243-9431
www.odorscience.com

June 1, 2004

Mike Reardon, P.E.
GeoSyntec Consultants
2100 Main Street, Suite 150
Huntington Beach, CA 92648

Mreardon@GeoSyntec.com
cc: SCHMIDTCE@aol.com

RE: Odor Analysis - ASCON Project
GeoSyntec Project No. SB0202-31
OS&E Project No. 1413-M-00

Dear Mike:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for GeoSyntec as part of the ASCON Landfill project. Odor emission samples were collect by project field personnel during the weeks of March 15th and May 3rd, 10th & 24th, 2004. The samples were collected into preconditioned 6 liter Tedlar gas sampling bags supplied by OS&E. Each day following sample collection, the bags were shipped via overnight delivery service to OS&E's Olfactory Laboratory in Bloomfield, CT. With the exception of the samples collected on May 25th, 2004, all sample shipments arrived with the samples intact matching with the accompanying chain of custody. On May 25th, a total of 9 samples were collected and sent for odor analysis, however, the shipment arrived containing only 8 samples and there was no chain of custody accompanying this set of samples. This was the only discrepancy between samples shipped and received.

Upon arrival each day the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-91 and E-544-99, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Table 1.

We appreciate the opportunity to be of service to GeoSyntec on this project. Please feel free to call me if you have any questions concerning these results.

Sincerely,
ODOR SCIENCE & ENGINEERING, INC.

Martha O'Brien
Principal

Table 1. Results of dynamic dilution olfactometry analysis – March & May, 2004
GeoSyntec: Ascon Landfill
OS&E Project No. 1413-M-00

Sample			Odor Conc. D/T[1]	Stevens' Law Constants[2]		Odor Character[3]
Date	ID	Time		a	b	
3/15/04	PNL-13-12DHF	1146	2,295	0.71	0.74	petroleum, gasoline, #2 oil, coal gas, peppery, sharp, kitty litter
3/15/04	PNL-15-12DHF	1519	385	0.71	0.61	oily, petroleum, No. 2 oil, turpentine, kerosene, , coal tar, spicy
3/15/04	PNL-15-100DHF	1534	8	--	--	stale, plastic, exhaust, oil
3/15/04	PNL-2-15-DHF	0917	11	--	--	stale, sour, rotten, oily, exhaust
3/16/04	PNL-5a-11DHF	0953	41	0.60	0.69	oily, petroleum, metallic, rotten wood, pine, earthy, fresh cut grass, sewage, sharp, chemical, plastic
3/16/04	PNL-12-100DHF	1134	9	--	--	oily, kerosene, mushrooms, stale, rubber, plastic
3/16/04	PNL-12-21DHF	1246	1,166	0.62	0.67	oily, petroleum, #2 fuel oil, turpentine, rotten, spicy, litter box, sharp
3/16/04	PNL-3-21DHF	1521	8,313	0.62	0.89	oily, petroleum, sulfur, stove gas, creosote, litter box, natural gas
5/03/04	PNL-1-15DHF	0843	2,958	0.66	0.74	oily, petroleum, gasoline, smoky, burnt, sour, rancid meat, pine
5/03/04	PNL-14-21DHF	1158	25,250	0.84	0.55	oily, petroleum, natural gas, cat urine, smoky
5/03/04	PNL-07-21DHF	1449	4,539	0.71	0.74	sour, oily, petroleum, gasoline, natural gas, cat urine, rancid meat
5/03/04	PNL-07-21RDHF	1454	4,949	0.63	0.67	oily, petroleum, gasoline, cat urine, rancid meat
5/03/04	PNL-07-B-DHF	1530	7	--	--	sour, plastic, paint, exhaust, electrical wires
5/04/04	PNL-10A-B-DHF	1615	1,274	0.35	0.84	oily, petroleum, smoky, stove gas, cat urine
5/04/04	PNL-11-12DHF	1215	385	0.63	0.61	oily, petroleum, shoe polish, varnish, wood floor cleaner, iodine, onion, epoxy, rubberbands
5/05/04	PNL-6-15-DHF	0825	275	0.56	0.97	oily, petroleum, gasoline, smoky, cat litter, rye bread, rotten eggs
5/05/04	PNL-9-15-DHF	1021	4,602	0.71	0.79	oily, petroleum diesel fuel, gasoline, motor oil, smoky, sewery
5/05/04	PNL-9-15-RDHF	1023	5,018	0.65	0.76	oily, petroleum, gasoline, diesel fuel, smoky, turpentine, varnish
5/05/04	PNL-8-18-DHF	1349	4,539	0.78	0.71	oily, petroleum, gasoline, diesel fuel, moldy, damp cellar, cleaning fluid, pungent, dead flowers
5/10/04	PNL-BA1-17SF4	1630	163	0.74	0.67	turpentine, pesticide, spicy, rotten, shoe polish, petroleum
5/11/04	PNLBA-8-17-SFU	1150	979	0.60	0.84	pesticide, turpentine, rotten lemons, cleaning fluid, pine needles, cat urine, floral, gasoline, floor polish, varnish
5/11/04	PNLBA8-17-SFC1	1244	1,265	0.58	0.78	pesticide, rotten lemons, earthy, dirt, greenhouse, pine needles, turpentine, cat urine, floral, floor polish
5/11/04	PNLBA8-17-SFC2	1355	1,166	0.62	0.79	pesticide, turpentine, rotten lemons, gasoline, pine needles, floral, solvent
5/11/04	PNLBA8-17-SFC3	1454	1,265	0.59	0.68	pesticide, turpentine, rotten lemons, greenhouse, dried leaves, dirt, pine needles, floral, gasoline, floor polish, varnish

Table 1 continued. Results of dynamic dilution olfactometry analysis – May, 2004
GeoSyntec: Ascon Landfill
OS&E Project No. 1413-M-00

Sample			Odor Conc.	Stevens' Law Constants[2]		Odor Character[3]
Date	ID	Time	D/T[1]	a	B	
5/11/04	PNLBA8-17-SFC4	1555	1,265	0.59	0.68	pesticide, gasoline, oily, sulfur, pine needles, cat urine, floral, rotten lemons, earthy, floor polish
5/11/04	PNLBA8-17-SFC5	1630	1,265	0.65	0.69	pesticide, pine needles, musty, sweaty, floral, gasoline, greenhouse, floor polish, varnish
5/12/04	PNLBA8-17-SFC6	1015	458	0.55	0.58	spicy, turpentine, pesticide, shoe polish, pine, cedar, wood resin, rotten petroleum
5/13/04	PNL-BA8-17-SFC7	1210	193	0.65	0.77	pesticide, cleaning fluid, floor stripper, solvent, floral, varnish, pine needles, green leaves, gasoline, petroleum
5/13/04	PNLBA1-17-SFC1	1417	25	0.52	0.73	pesticide, antiseptic, cleaning fluid, floor stripper, musty, earthy, wet soil
5/13/04	PNLBA3-X-SFU	1511	193	0.63	0.73	pesticide, oily, gasoline, garage, petroleum, new rubber, pine needles, pine cleaner, green house, disinfectant, burnt
5/13/04	PNLBA3-X-SFC	1603	126	0.74	0.54	pesticide, antiseptic, pine needles, floral, green house, floor stripper, varnish, petroleum, gasoline, burnt rubber
5/13/04	PNLBA3-100-SFC	1615	<5	--	--	Plastic, car exhaust, moldy
5/14/04	PNLBA11-X-SFU	0816	126	0.54	0.79	sharp, styrene, ammonia, bad onions, gasoline, oily, kerosene, hot lead, smoky, mothballs
5/14/04	PNLBA11-X-SFC	0914	49	0.40	0.88	glue, iodine, mothballs, kerosene, solvent, styrene, airplane glue, musty, natural gas, smoky, burnt
5/14/04	PNLBA13-X-SFU	1017	193	0.78	0.72	oily, petroleum, gasoline, pine tar, pine tree, cleaning fluid, solvent, paint, floor stripper
5/14/04	PNLBA13-X-SFC	1112	13	0.72	0.85	Wet caulk, powdery, floor cleaner, pine tar, pine trees, pesticide
5/14/04	PNLBA06-X-SFU	1220	106	0.76	0.54	pesticide, pine trees, petroleum, oily, gasoline, floral, antiseptic
5/14/04	PNLBA06-X-SFC	1307	23	0.66	0.69	pesticide, antiseptic, pine trees, gasoline, ammonia, greenhouse, solvent
5/14/04	PNLBA07-X-SFU	1405	89	0.70	0.67	pesticide, greenhouse, pine tar, pine trees, antiseptic, gasoline, burnt rubber, petroleum
5/14/04	PNLBA07-X-SFC	1456	49	0.66	0.64	pesticide, gasoline, pine trees, oily, petroleum, bleach
5/24/04	PNL-L-5A-SFU	--	97	0.53	0.75	oily, petroleum, kerosene, gasoline, turpentine, wet cement, rotten eggs, cat urine, floral, earthy, tar
5/24/04	PNL-L-5A-SFC1	1150	89	0.59	0.75	pesticide, oily, gasoline, kerosene, varnish, tar, floor cleaner, floral, earthy, smoky
5/24/04	PNL-L5A-SFC2	1210	25	0.51	0.80	sour, oily, paste, plastic, paint, varnish, turpentine, wet cardboard, eraser
5/24/04	PNL-L4B-SFU	1308	211	0.51	0.70	Oily, pesticide, petroleum, gasoline, kerosene, sulfur, oily exhaust, wet sneakers
5/24/04	PNL-L4B-SFC2	1351	13	0.61	0.89	gasoline, rubber tires, plastic, tar, new linoleum
5/24/04	PNL-L4A-SFU	1521	250	0.54	0.72	Oily, gasoline, cat urine, turpentine, tar, rotten vegetables, burnt sulfur
5/24/04	PNL-L4A-SFC2	1615	89	0.60	0.79	petroleum, kerosene, gasoline, oily, varnish, cat urine, cadaverous, pesticide, burnt tar, wet bricks
5/24/04	PNL-L4A-SFC2	1620	82	0.71	0.47	Oily, petroleum, exhaust, cat urine, wine, tar, pesticide, chemical
5/25/04	PNL-L5B-SFU	0905	451	0.30	0.87	sewage, rotten eggs, sulfur, fecal, pig farm, gasoline, petroleum, H_2S
5/25/04	PNL-L5B-SFC1	1010	386	0.36	0.86	Rotten eggs, sulfur, petroleum, gasoline, sewage, pig farm, fecal
5/25/04	PNL-L5B-SFC2	1005	89	0.47	0.74	oily, petroleum, gasoline, sulfur, stove gas, rotten, garbage
5/25/04	PNL-L3B-SFU	1103	193	0.58	0.67	petroleum, cat urine, sour, rotten, stove gas, gasoline

Table 1 continued. Results of dynamic dilution olfactometry analysis – May, 2004
GeoSyntec: Ascon Landfill
OS&E Project No. 1413-M-00

Sample			Odor Conc.	Stevens' Law Constants[2]		Odor Character[3]
Date	ID	Time	D/T[1]	a	B	
5/25/04	PNL-L3B-SFC1	1155	137	0.38	0.93	rotten, petroleum, sulfur, urine, turpentine, gasoline
5/25/04	PNL-L3B-SFC2	1140	16	0.49	0.99	gasoline, petroleum, plastic, mushroom, rotten, shoe polish, paint
5/25/04	PNL-L200-SFU	1313	9	--	--	plastic, stale mushroom, kerosene, paint, melting wax
5/25/04	PNL-L3A-SFU	1445	163	0.43	0.83	petroleum,, gasoline, waxy crayon, floor wax, shoe polish
5/25/04	PNL-L3A-SFC1	1541	115	0.28	0.97	gasoline, rotten, stove gas, petroleum
5/25/04	PNL-L3A-SFC2	1546	63	0.40	0.94	shoe polish, petroleum, rotten, gasoline
5/26/04	PNL-L2B-SFU	1110	583	0.32	0.88	petroleum, oil, gasoline, shoe polish, kitty litter
5/26/04	PNL-L2A-SFC1	1150	210	0.47	0.83	rotten, petroleum, gasoline, kerosene, sour, varnish, floor wax
5/26/04	PNL-L2B-SFC2	1219	32	0.47	0.64	mushroom, musty, wet basement, wet earth, coal, diesel fuel, gasoline
5/26/04	PNL-L1B-SFU	1331	2,123	0.40	0.88	gasoline, diesel oil, rotten, sulfur, petroleum
5/26/04	PNL-L1B-SFC1	1424	106	0.37	0.88	musty, kerosene, gasoline
5/26/04	PNL-L1B-SFC2	1418	16	0.48	0.92	musty, moldy, putty, soapy, grease, fat, waxy, sour coconut milk, sewage, plastic
5/26/04	PNL-L2A-SFU	1531	2,310	0.45	0.84	oil, gasoline, petroleum, rotten, rotten meat, coal, tar
5/26/04	PNL-L2A-SFC1	1623	163	0.32	0.84	rotten, petroleum, kerosene, turpentine, shoe polish, pine needles
5/26/04	PNL-L2A-SFC2	1616	30	0.68	0.74	gasoline, musty, earthy, moldy, wet basement, sewage, floor polish, dirty water
5/26/04	PNL-L2A-SFUR0	1530	1,947	0.43	0.97	petroleum, gasoline, sulfur, oil
5/27/04	PNL-L1A-SFU	0750	194	0.62	0.88	eucalyptus, turpentine, rotten, earthy, petroleum, gasoline, sour
5/27/04	PNL-L1A-SFC1	0855	149	0.64	0.81	eucalyptus, turpentine, varnish, gasoline, sour, exhaust
5/27/04	PNL-L1A-SFC2	0830	22	0.56	0.87	pesticide, turpentine, eucalyptus, kerosene, gasoline, paint, varnish

1. D/T = dilutions-to-threshold
2. Stevens' Law correlates odor concentration (C) and odor intensity (I): $I = aC^b$. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
3. as described by odor panelists at various dilution levels.

ATTACHMENT A
Odor Science & Engineering, Inc.
Odor Panel Methodology

Measurement of Odor Levels by Dynamic Dilution Olfactometry

Odor concentration is defined as the dilution of an odor sample with odor-free air, at which only a specified percent of an odor panel, typically 50%, will detect the odor. This point represents odor threshold and is expressed in terms of "dilutions-to-threshold" (D/T).

Odor concentration was determined by means of OS&E's forced choice dynamic dilution olfactometer. The members of the panel who have been screened for their olfactory sensitivity and their ability to match odor intensities, have participated in on-going olfactory research at OS&E for a number of years.

In olfactometry, known dilutions of the odor sample were prepared by mixing a stream of odor-free air with a stream of the odor sample. The odor-free air is generated in-situ by passing the air from a compressor pump through a bed of activated charcoal and a potassium permanganate medium for purification. A portion of the odor free air is diverted into two sniff ports for direct presentation to a panelist who compares them with the diluted odor sample.

Another portion of the odor-free air is mixed in a known ratio with the odor from the sample bag and is then introduced into the third sniff port. A panelist is thus presented with three identical sniff ports, two of which provide a stream of odor-free air and the third one a known dilution of the odor sample. Unaware of which is which, the panelist is asked to identify the sniff port which is different from the other two, i.e., which contains the odor. The flow rate at all three nose cups is maintained at 3 liters per minute.

The analysis starts at high odor dilutions. Odor concentration in each subsequent evaluation is increased by a factor of 2. Initially a panelist is unlikely to correctly identify the sniff port which contains an odor. As the concentration increases, the likelihood of error is reduced and at one point the response at every subsequently higher concentration becomes consistently correct. The lowest odor concentration at which this consistency is first noticed, represents the **detection odor threshold** for that panelist.

As the odor concentration is increased further in the subsequent steps, the panelist becomes aware of the odor character, i.e. becomes able to differentiate the analyzed odor from other odors. The lowest odor concentration at which odor differentiation first becomes possible, represent the **recognition odor threshold** for the panelist. Essentially all of OS&E's work is done with recognition odor threshold. By definition the threshold odor is equal to 1 D/T (i.e. the volume of odorous air after dilution divided by the volume before dilution equals one).

The panelists typically arrive at threshold values at different concentrations. To interpret the data statistically, the geometric mean of the individual panelist's thresholds is calculated.

The olfactometer and the odor presentation procedure meet the recommendations of ASTM Standard Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series of Limits (ASTM E679-91). The analysis will be carried out in the OS&E Olfactory Laboratory in Bloomfield, Connecticut.

Odor Intensity

Odor intensity is determined using reference sample method with n-butanol as the reference compound (ASTM Method E-544-99). The n-butanol odor intensity scale is based on n-butanol vapor as odorant at eight concentrations. The concentration increases by a factor of two at each intensity step, starting with approximately 15 ppm at step 1.

Odors of widely different types can be compared on that scale just like the intensities of the lights of different colors can be compared to the intensity of standard, e.g. white light. Odor character and hedonic tone are ignored in that comparison. Odor intensities are routinely measured as part of the dynamic dilution olfactometry measurements. The n-butanol vapor samples are presented to the panelists in closed jars containing the standard solutions of n-butanol in distilled water. The vapor pressure above the butanol solutions corresponds to the steps on the n-butanol scale. To observe the odor intensity, a panelist opens the jar and sniffs the air above the liquid. The panelist then closes the jar so that the equilibrium vapor pressure of butanol can be re-established before the next panelist uses the jar. The odor in the jar is compared with unknown odor present at the olfactometer sniff port.

The relationship between odor concentration and intensity can be expressed as a psychophysical power function also known as Steven's law (Dose-Response Function). The function is of the form:

$$I = aC^b$$

where:

I = odor intensity on the butanol scale
C = the odor level in dilution-to-threshold ratio (D/T)
a,b = constants specific for each odor

The major significance of the dose-response function in odor control work is that it determines the rate at which odor intensity decreases as the odor concentration is reduced (either by atmospheric dispersion or by an odor control device).

Odor emissions are used as input to an odor dispersion model, which predicts odor impacts downwind under a variety of meteorological conditions. Whether or not an odor is judged objectionable depends primarily in its intensity. The dose-response constants are used to convert predicted ambient odor concentration to intensity levels. OS&E experience has shown that odors are almost universally considered objectionable when their intensity is 3 or higher on the 8-point n-butanol scale. In general, the lower the intensity, the lower the probability of complaints.

Odor Character Description

Odor character refers to our ability to recognize the similarity of odors. It allows us to distinguish odors of different substances on the basis of experience. We use three types of descriptors, general such as “sweet”, “pungent”, “acrid”, etc. or specific references to its source such as “orange”, “skunk”, “paint”, “sewage”, etc., or to a specific chemical, e.g. “methyl mercaptan”, “butyric acid”, or “cyclohexane”. In the course of the dynamic dilution olfactometry measurements, the odor panelists are asked to describe the character of the odors they detect.

Odor Science & Engineering, Inc.
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July 7, 2004

Mike Reardon, P.E.
GeoSyntec Consultants
Huntington Beach, CA

Mreardon@GeoSyntec.com
cc: SCHMIDTCE@aol.com

RE: Odor Analysis June 30th, July 1st & 2nd, 2004 – ASCON Project
GeoSyntec Project No. SB0202-31H
OS&E Project No. 1413-M-00

Dear Mike:

This letter presents the results of the recent odor panel analyses conducted by Odor Science & Engineering, Inc. (OS&E) for GeoSyntec as part of the continuation of the ASCON project. A total of fifteen (15) odor emission samples were collect by project field personnel during the week of June 28th, 2004. The samples were collected into preconditioned 6 liter Tedlar gas sampling bags supplied by OS&E. Each day following sample collection, the bags were shipped via overnight delivery service to OS&E's Olfactory Laboratory in Bloomfield, CT. All samples arrived intact under chain of custody requesting sensory analysis.

Upon arrival the samples were analyzed by dynamic dilution olfactometry using a trained and screened odor panel of 8 members. The odor panelists were chosen from OS&E's pool of panelists from the Greater Hartford area who actively participate in ongoing olfactory research and represent an average to above average sensitivity when compared to a large population. The samples were quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-91 and E-544-99, respectively. The odor panelists were also asked to describe the odor character of the samples at varying dilution levels. The odor panel methodology is further described in Attachment A.

The results of the odor panel tests are presented in the attached Table 1.

We appreciate the opportunity to be of service to GeoSyntec on this project. Please feel free to call me if you have any questions concerning these results.

Sincerely,
ODOR SCIENCE & ENGINEERING, INC.

Martha O'Brien
Principal

Table 1. Results of dynamic dilution olfactometry analysis – June/July, 2004
GeoSyntec: Ascon Landfill
OS&E Project No. 1413-M-00

Sample			Odor Conc. D/T[1]	Stevens' Law Constants[2]		Odor Character[3]
Date	ID	Time		a	b	
6/28/04	PNL-F5-13.5-0	09:28	58	.56	.80	smoky, petroleum, chemical, solvent, asphalt, stove gas, kerosene, medicinal
6/28/04	PNL-F4-15-0	13:58	2,703	.63	.66	fuel oil, kerosene, petroleum, diesel, rotten onions, burning trash
6/28/04	SF-BLK-0	14:06	11	--	--	plastic, wet paper
6/30/04	PNL-F19-4-0	08:25	82	.60	.69	smoky, petroleum, kerosene, chemical, gasoline, oily, pine tar, candle wax
6/30/04	PNL-F19-10-0	09:04	825	.46	.73	oily, chemical, kerosene, paint, pesticide, garbage, rubber, nail polish remover, sharp
6/30/04	PNL-F1-13-0	11:10	1,894	.61	.60	sour, chemical, rotten onions, natural gas, gasoline, burnt wood, pesticide, shoe polish, oily, burnt
6/30/04	PNL-F1-13-0R	11:20	2,132	.59	.64	smoky, oily, chemical, kerosene, natural gas, gasoline, shoepolish, pesticide, sharp, garbage
6/30/04	PNL-F75-1-0	15:19	10	--	--	earthy, plastic
7/1/04	SF-STY1-U-0	09:34	45	.45	.85	smoky, burnt, oily, petroleum, kerosene, diesel
7/1/04	SF-STY1-U-0R	09:45	49	.52	.96	smoky, burnt, sour, gasoline, kerosene, styrene, burnt wood
7/1/04	SF-STY2-U-0	10:13	211	.60	.81	sour, rotten , garbage, vomit, burnt match
7/1/04	SF-STY1-C1-0	11:04	35	.76	.82	sour, smoky, kerosene, oily, shoe polish, mothballs
7/1/04	SF-STY2-C1-0	11:35	707	.57	.87	H_2S, sour, sulfur, sewage
7/1/04	SF-STY1-C2-0	13:05	23	.58	.86	sour, solvent, shoe polish, floor wax, paint, smoky, burnt, styrene
7/1/04	SF-STY2-C2-0	13:10	15	.54	.89	sour, metallic, oily, wet cardboard, burnt rubber

1. D/T = dilutions-to-threshold
2. Stevens' Law correlates odor concentration (C) and odor intensity (I): $I = aC^b$. The constants a and b were determined by regression analysis based on the intensity ratings of the odor panel at varying dilution levels. I = 0-8 (based on the n-butanol intensity scale), C = odor concentration (D/T) typical of ambient odor levels.
3. as described by odor panelists at various dilution levels.

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ATTACHMENT A
Odor Science & Engineering, Inc.
Odor Panel Methodology

Measurement of Odor Levels by Dynamic Dilution Olfactometry

Odor concentration is defined as the dilution of an odor sample with odor-free air, at which only a specified percent of an odor panel, typically 50%, will detect the odor. This point represents odor threshold and is expressed in terms of "dilutions-to-threshold" (D/T).

Odor concentration was determined by means of OS&E's forced choice dynamic dilution olfactometer. The members of the panel who have been screened for their olfactory sensitivity and their ability to match odor intensities, have participated in on-going olfactory research at OS&E for a number of years.

In olfactometry, known dilutions of the odor sample were prepared by mixing a stream of odor-free air with a stream of the odor sample. The odor-free air is generated in-situ by passing the air from a compressor pump through a bed of activated charcoal and a potassium permanganate medium for purification. A portion of the odor free air is diverted into two sniff ports for direct presentation to a panelist who compares them with the diluted odor sample.

Another portion of the odor-free air is mixed in a known ratio with the odor from the sample bag and is then introduced into the third sniff port. A panelist is thus presented with three identical sniff ports, two of which provide a stream of odor-free air and the third one a known dilution of the odor sample. Unaware of which is which, the panelist is asked to identify the sniff port which is different from the other two, i.e., which contains the odor. The flow rate at all three nose cups is maintained at 3 liters per minute.

The analysis starts at high odor dilutions. Odor concentration in each subsequent evaluation is increased by a factor of 2. Initially a panelist is unlikely to correctly identify the sniff port which contains an odor. As the concentration increases, the likelihood of error is reduced and at one point the response at every subsequently higher concentration becomes consistently correct. The lowest odor concentration at which this consistency is first noticed, represents the **detection odor threshold** for that panelist.

As the odor concentration is increased further in the subsequent steps, the panelist becomes aware of the odor character, i.e. becomes able to differentiate the analyzed odor from other odors. The lowest odor concentration at which odor differentiation first becomes possible, represent the **recognition odor threshold** for the panelist. Essentially all of OS&E's work is done with recognition odor threshold. By definition the threshold odor is equal to 1 D/T (i.e. the volume of odorous air after dilution divided by the volume before dilution equals one).

The panelists typically arrive at threshold values at different concentrations. To interpret the data statistically, the geometric mean of the individual panelist's thresholds is calculated.

The olfactometer and the odor presentation procedure meet the recommendations of ASTM Standard Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series of Limits (ASTM E679-91). The analysis will be carried out in the OS&E Olfactory Laboratory in Bloomfield, Connecticut.

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